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ABSTRACT

This report reviews some of the more important educational innovations that have transformed the arrangement of space and design of the schoolhouse environment. Design, structural, and functional features are described for open plan schools (schools without interior walls). Consideration is given to the use of performance specifications in the design of a coordinated series of building components, and to the influence of instructional hardware (computers, films, television, tapes) on schoolhouse design. EFL's involvement in these developments is examined. Financial statements of EFL's assets and liabilities and the related statement of income, grants, and expenses are followed by a list of EFL reports and project publications. (FS)

ED034379

Transformation of the Schoolhouse

EF 003 665

1969 ANNUAL REPORT

EDUCATIONAL FACILITIES LABORATORIES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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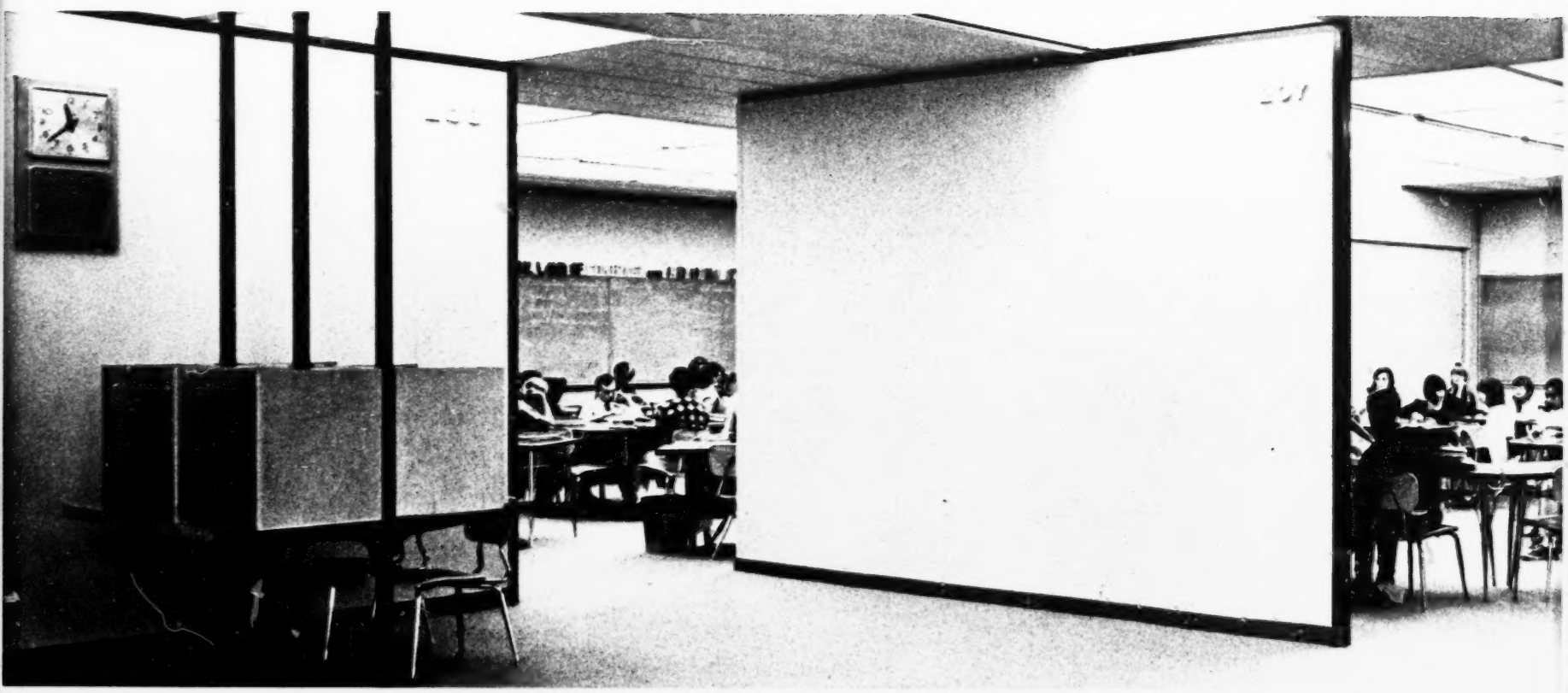
Transformation of the Schoolhouse

Annual Report for 1969 with supporting financial data for the fiscal year 1968



Educational Facilities Laboratories, Inc. is a nonprofit corporation established by the Ford Foundation to help schools and colleges in the United States and Canada with their physical problems by the encouragement of research and experimentation and the dissemination of knowledge regarding educational facilities.

Library of Congress Catalog No: 75-99302

The schoolhouse today

The contemporary schoolhouse bears little resemblance to its counterpart designed a decade ago. Externally, it has taken new forms, new shapes. Internally, it accommodates new arrangements of space and people that can be adapted to meet current and future educational needs. The environment is one of respect, not the hard, institutional atmosphere of the past. Much of the equipment which more venturesome schools use as a matter of course today was nonexistent 10 years ago at the time the Ford Foundation established Educational Facilities Laboratories.

The schoolhouse is only one of the concerns of EFL, whose mission extends to the physical problems of educational institutions at all levels. But, since 1968, the year covered by this annual report, marked EFL's tenth anniversary, it seems appropriate to take a new look at the schoolhouse and to report on its transformation.

Open plans and open minds

Among the more important educational innovations during the last decade is the development of a new kind of schoolhouse built without interior walls. Called *open plan schools* or *schools without walls*, the buildings mark the first major change in the design of schoolhouses for a hundred years.

As the name suggests, open plan schools are physically and philosophically structures containing unbroken expanses of space where 4 or more teachers with a wide range of talents teach 100 or more children of varying ages. Conspicuously absent in these schoolhouses are the familiar rows of classroom boxes which, by their nature, sort children into uniform size groups according to age, grade, or some other fixed criterion. The uniformity of groups and spaces unfortunately dictates that all the children will learn in the same way and at the same pace.

Opening up of the classroom box signifies more than a shift in geometry for it offers the promise of a new era in learning—a style which acknowledges that the individual child has no peer. Good educators have long believed the axiom that children differ from each other, that their abilities and learning patterns vary, and that each grows and adjusts to his world in a distinctly singular way. But, except in unusual circumstances, conventional classroom arrangements have kept them from doing so.

Fortunately, the permissive architecture of the open school encourages diversity and individuality. It invites release of a child from subjugation to the group—even the more palatable group comprising youngsters matched according to their ability in subject areas. (No matter what euphemisms are used, membership in a slow group, or even a bright one, proclaims itself like the name of a club emblazoned on a jacket. And initiation into the club often means permanent membership.) In a physical environment free of compartments that box in people and information, *ability* as a criterion for the organization of youngsters can yield to *compatibility*. Whoever can work together profitably and pro-

ductively may do so, the young child learning from the older, the slow from the quick, the brighter and more mature learning from their role as tutor, and any and all learning from things as well as teachers.

Children are not the only beneficiaries in this setting: teachers too are similarly sprung loose. Freed from lonely rule over 30 pupils in a four-walled domain, they can pool their own varied abilities into a reservoir of talent greater than the sum of the separate parts. In daily natural association, they can plan collectively for the deployment of pupils and programs unbound by place or schedule.

Designed for the logistics of learning, the unrestrictive physical environment permits children and teachers to move through the schoolhouse in whatever way makes sense for the task at hand—working alone or with another, in a cluster of 10 or 30 or 100, for brief or long periods of time, with a single source or a large array of materials. Because they are unhampered by physical constraints, pupils and staff can form and re-form in various combinations that can shift by the hour, day, or week, to suit the changing program requirements. The sole determinant of group size, composition, or activity for optimum learning rests in the combined judgment of teachers. The children benefit since they do not need to adjust to different classmates, a strange room, or a new teacher.

Partitions disappear completely

Viewed historically, the physical form of an open school is a logical development in the quest for educational space that can yield to the changing activities within it. With the advent of new teaching techniques —nongrading, team teaching, large/small group instruction, independent inquiry, programmed learning, media for individual users, et al.—rose the need for flexibility in spatial arrangements. Early in the sixties, some schools attempted to meet this need by varying the placement of interior partitions. This was based on the assumption that if partitions defined enough of the right kind of boxes, program changes could be accommodated by rearranging the people within them. Thus came into being schools like the Estabrook School in Lexington, Massachusetts, and the

Wayland High School in Wayland, Massachusetts, whose programs are housed in a variety of fixed spaces designed for specific teaching purposes—large lecture halls, small conference rooms, and space for independent study, as well as conventional classrooms.

An alternative approach to flexibility rested on the ability to rearrange partitions. In the first loft plan schools, Hillsdale High School in San Mateo, California, and Andrews High School in Andrews, Texas, both designed by John Lyon Reid, the space is segmented by partitions which can be taken down and reused to establish new spatial configurations as needed.

These front-runners worked well enough when changes in program took place slowly over a period of years or decades. But immediate change was beyond them. Taking down and putting up the partitions was costly and always involved compromises. Newly created spaces were usually incompatible with lighting, heating, and ventilating elements. (Later, more sophisticated versions of these early loft plans evolved into today's SCSD school buildings which overcome many of these disadvantages.) But out of these first loft-plan schools came acceptance of the movable or demountable partition—and then, the instantly movable, or operable, partition. Nowadays, these partitions are as common in schools as chalkboards or the principal's office.

Inevitably in the chronology of juggling walls to make form follow function, the notion came that if a movable wall was good, leaving it out completely would be even better. Initial experiments that omitted partitions and fused four classrooms into one jumbo rectangle met with enthusiasm. In 1957 at Carson City, Michigan, in 1961 at the Sands Primary School in Chagrin Falls, Ohio, and a few years later at the Dilworth Elementary School in San Jose, California, teachers and administrators found these big rooms to be not only workable, but superior housing for education.

The word spread and so did elaborations on the theme. The simple rectangular enclosure gave way to new perimeter shapes—circles, hexa-

gons, and volutes, some in the form of connected pods under one roof, others as campus plans with separate buildings. Refinements evolved. The size of instructional areas was expanded to accommodate more pupils and to include a central library or common. To avoid a new rigidity imposed by openness itself, small special-purpose adjunct rooms were added, and ceilings or floors were equipped with tracks for interior partitions if ever they should be required. In some schools the generalized tone of the undivided space was punctuated by mezzanines or sunken pits or both.

Today, a still newer generation of schools without walls marks a further stage of evolutionary development. The newer models, quite simply, open the open school itself. Earlier prototypes were archipelagos of undivided space, each inhabited by a quarter or third of the school population, but later the islands of open space were fused into one unified mass inhabited by the total population. Two schools illustrate this concept; Matzke Elementary School in Houston, Texas, and the Bradford Middle School in Stark, Florida. At Matzke, the school's total enrollment of 630 children, 5 to 11 years old, and its entire instructional staff of 22 (ages undetermined), live and learn in a 56,000 square foot area that is essentially an instructional village. In conventional terms, it encompasses the equivalent of 24 separate classes and classrooms.

Open spaces gain ground

In a field long plagued by the lag between an idea and its implementation, the remarkable acceptance of the open school concept in a single decade suggests "it is an idea whose time has come." It is not known how many such schools exist today, but the numbers are growing at an impressive rate. In California, where a new school is built every day, 20 percent of all elementary schools built during the past three years have totally open interiors and 75 percent contain some open areas. Since 1968, most New York City programs for buildings housing prekindergarten through fourth grades call for unwalled teaching complexes; 50 percent of intermediate schools are being similarly planned.

In smaller districts around the country, the emergence of schools without walls seems wholesale. Jefferson County, Colorado, will have erected 15 schools without walls (new buildings and additions) between 1966 and 1972. Dade County, Florida, now has under construction $5 million of early childhood facilities based on open plans and has more to come. At the secondary level, where the trend moves slowly, there are signs of acceptance. In scattered places experiments with the opening of discrete zones have been progressing for some time. But here and there, at Lowell, Indiana, and New Ipswich, New Hampshire, among others, designs are now on the boards that will totally unbox entire high schools.

Open plan facilities, precisely because they encompass large scoops of generalized space, demand greater sensitivity in planning and in attention to environmental details than do conventional schools. Without it, there is the danger of mechanically exchanging small boxes for large ones. In such circumstances, people massed in a single place may be abrasive to each other rather than supportive, with corresponding inefficiency in performing the task at hand. There is also the need to humanize large space to endow it with color, texture, variety, surprise, and delight in case its dimensions grow oppressive. A special talent is required for selecting furnishings and equipment with characteristics suitable for an open setting because the size, weight, and relative immobility of conventional furniture discourages rearrangement and creates spatial barriers where none were intended. (Even a ubiquitous fixture such as the ordinary school chair does not serve well.) Engineers have not yet resolved efficient means of distributing communications and power outlets in large spaces where audio-visual and other machines are used at a moment's notice. Nor have they developed temporary screens that can be manipulated by a small child for occasional visual privacy. When these and other details are refined and organically integrated into open plan structures, the schoolhouse will have come of age.

One noteworthy aspect of the open school phenomenon is the reversed role of school facilities in relation to other building types such

as offices and commercial structures. Traditionally, school buildings have been the rear guard, limping behind the structural and environmental advances adopted by other sectors of society. Loft spaces, air conditioning, carpeting, are prime examples. But in a twist of habitual sequence, the business sector is following the education community, arriving at the insights that moved thoughtful schoolmen a decade ago: i.e., greater productivity results from a capacity for responding to change and from an unblocked flow of information. Thus the commercial counterpart of the open school, "office landscaping," has been used at such corporations as DuPont, Eastman Kodak, and the Port of New York Authority. The latter estimates that its open offices will save $475,000 annually during the next 10 years in rearranging office partitions and communications equipment.

From the whole to its parts

Although eliminating interior space divisions was the most spectacular advance in schoolhouse design during the decade under review, it was by no means the only one. The new programs that generated radical floor plans also demanded technological sophistication in the components comprising the buildings. One of the technologies receiving attention is air conditioning, which 10 years ago was considered an oddity in schoolhouses but is now built into about 30 percent of new school buildings. This is not too surprising when half the buyers of new low-priced automobiles order cars equipped with air conditioning.

Several factors contribute to the introduction of air conditioning into schools: the realization that the window was a poor form of ventilation and often an expensive one; the desire for full-year use of the schoolhouse, particularly as rural children no longer have to spend long summers working on farms; the need to use interior and windowless space; and of course the not-to-be-denied desire for comfort and efficiency.

Similarly, improved techniques in lighting were introduced to schoolhouses. Research in vision led to increases in standards, calling for both higher levels of lighting and more efficient design to insure higher quality lighting.

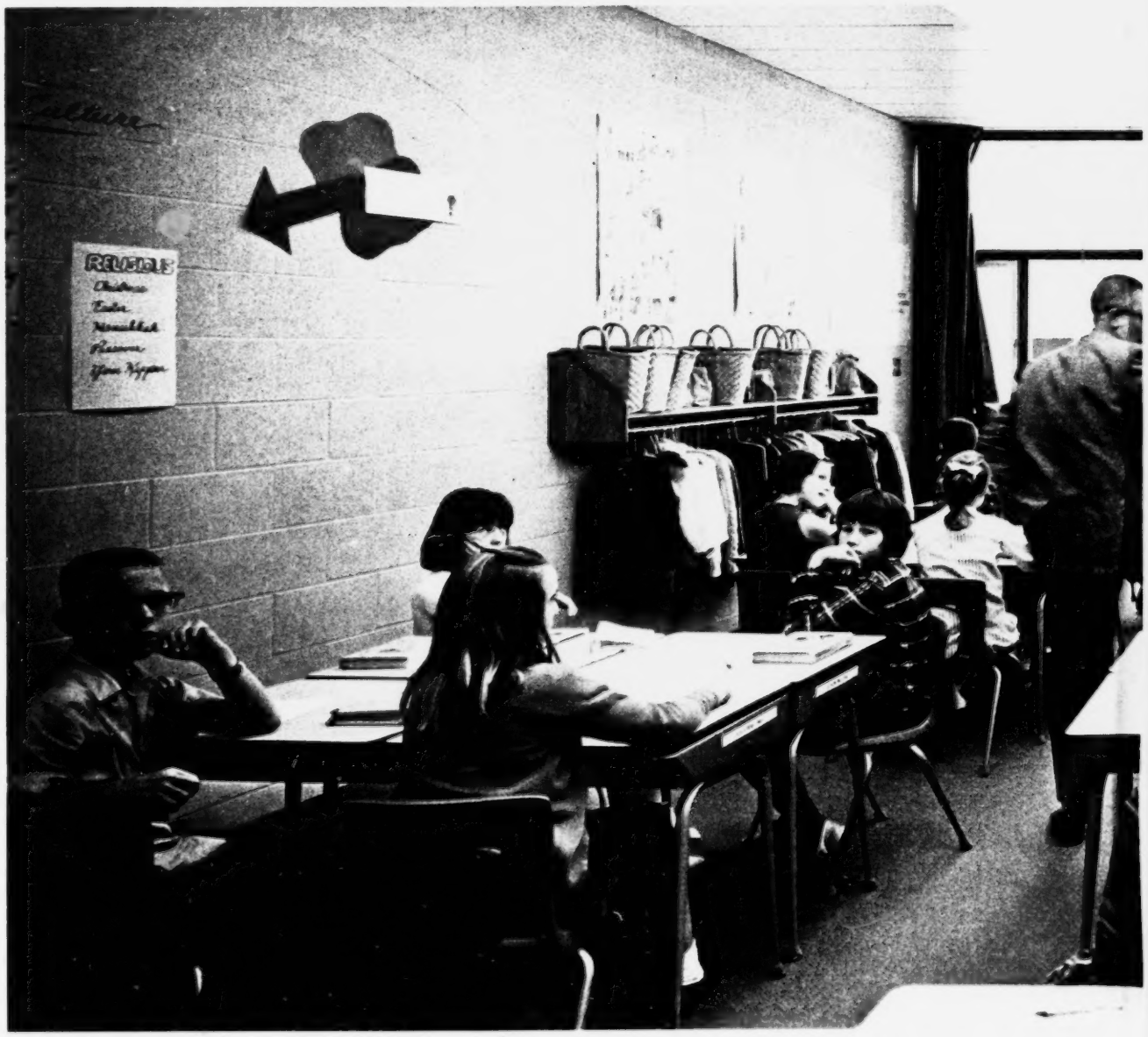
Another of the more dramatic developments in the American schoolhouse during EFL's first decade was underfoot. Carpet hit the North American school in a big way. It was almost unknown in 1958 except in a few kindergartens, but now carpet in schools is considered quite a reasonable floor covering. The acceptance of what was once thought to be an unjustifiable luxury results from it being the only floor covering that provides good acoustic treatment for masking noise in libraries and in the large open spaces built during the last 10 years.

Performance specifications improve school construction

No matter how noble architecture sounds, it is made up of products,

parts—or, as they are usually called in the building industry, components. Increasingly, architecture, including schools, comprises complex components instead of the traditional small pieces such as bricks. These components are not architecture, but they do form the lighting and air-conditioning systems and the space divisions (partitions) that govern the performance of buildings.

During its first decade EFL organized and saw to a successful completion the first system of building components developed expressly to fulfill the



special needs of education. The School Construction Systems Development Program (SCSD) in California led to the design and manufacture of a coordinated series of components for structure, ceiling-lighting, heating-ventilating-cooling, partitions, windows and doors, and lockers. All these were designed to meet performance criteria written after extensive study of the educational needs of 13 typical suburban California school districts. This was the first time performance specifications had been used extensively in architectural products. While performance

requirements were common in military systems design, architectural products were normally described in hardware specifications which dealt with the materials components were to be made of rather than with what they were to accomplish.

The resulting schools have profited economically from using the SCSD components, which were bid on a significantly larger scale than is possible for individual schools, but they have probably gained more significantly from the environmental quality and the degree of flexibility for the reordering of space hitherto unknown in school construction.

Not only have more than 1,000 buildings used at least some of the components developed as a result of the SCSD program, but similar programs are now under way in Ontario, Quebec, Florida, and Pennsylvania, and more are on the way. The concept of coordinated systems of components designed to meet the peculiar requirements of education is now finding its way into higher education as well. Basic to all these programs is an effort to improve quality while fighting the increasingly sharp trend of inflation in school building and indeed all building.

The revolution in school design has been not only in pedagogical plan and in building design, but also in the components which make up school buildings. More civilized, more efficient, and more economical schools result from the revolution.

The machine input

The decade began with machines invading the classroom for the sole purpose of bringing more information to more students. It ended with the thrust in another direction so that machines can make instruction more responsive to the individual. In between were important developments affecting the housing as well as the conduct of education.

During the late 1950's, radio, film, and television were used experimentally to give information simultaneously to large numbers of students. One Midwest program beamed televised instruction to schools throughout a seven-state region. In Hagerstown, Maryland, a central studio transmitted televised instruction to all the City's public schools. And at Penn State, hundreds of students gathered in auditoriums and classrooms to view televised instruction, sometimes projected on large screens. In hundreds of other classrooms, lecture halls, and audio-visual rooms, filmed and televised media became instructional staples.

One by one, other media were added—slides, sound filmstrips, audio recordings, overhead projection, and large-scale demonstrations—and finally the multi-media concept was introduced. Lecture halls and classrooms were created which made a wide range of technology available to the teachers. Among the prototypes were: Rensselaer Polytechnic Institute's mock-up "classroom in the chapel," the large-group multi-media rooms in a Wayland, Massachusetts, high school, and the Dundee Elementary School, Greenwich, Connecticut. From these evolved a new building type—the communications center. These combined multi-media lecture halls with production and support facilities, such as were built on campuses of the State University of New York, at Syracuse, and at Southern Illinois. The developments in multi-media began to indicate that the audio-visual cults were giving way to a learning systems approach to instruction. And during this developmental period some of the simple teaching tools, notably the overhead projector, became standard equipment in many classrooms.

The conventional classroom and lecture room were joined by a family

of new facilities designed to accommodate current technical equipment. Support for the family emanated from Washington when the National Defense Education Act, reflecting a concern for language instruction, made federal funds available for language laboratories. By the late 1950's, any secondary school or college considering itself to be innovative, or even up to date, installed a language laboratory.

Electronic aids will change schoolhouse design

With the 1960's came a special concern for individualizing education—planning instruction in response to the motivations, abilities, and needs of students as individuals rather than as large groups. With team teaching and ungraded groups, the library took on the new role of a multimedia storehouse of information instead of a repository for the printed word. To make these resources available to individual students, card catalogues began to list *all* the resources on a subject, and libraries began to store records, films, and tapes side by side with books and periodicals. Carrels became a place to view a filmstrip or hear a tape, as well as to read a book.

Some schools and colleges also experimented with more technically sophisticated systems for retrieving information. Dial access—audio and video tapes and films fed to carrels on a demand basis—was pioneered in Mount Kisco, New York, and West Hartford, Connecticut. Technological refinements—both in reducing costs and increasing effectiveness—are being pursued in Oak Park-River Forest High School, Illinois, with its project on rapid retrieval of audio materials. But although hardware is becoming more economical and convenient to use, the development of program materials—software—still remains critical.

Software and economics also figure prominently in the development of computers in education. In this field three separate directions can be discerned. First, in computer-aided instruction a student will interact directly with a computer program in order to learn from it. Brentwood, California, and New York City are among several dozen cities working with developmental projects in computer-aided instruction. Second, in computer-managed instruction a computer will act as scorekeeper and scheduler of individualized or group instruction. This is typified in the IPI (individually prescribed instruction) program at the Oakleaf School near Pittsburgh. The third major direction with computers is for aid in managing the total education enterprise—writing payroll checks, maintaining attendance records, scheduling facilities, staff, and students. Two programs are under way: GASP (Generalized Academic Simulation Pro-

grams) and Duke's project on Computer Aided Campus Planning.

So far, no one can predict how these computer applications will affect the physical makeup of schools. All we know is that the equipment for individual computer programs could be housed in spaces similar to libraries, and the other programs could be installed in administrative areas. The more widely used non-computerized technology is beginning to be housed in facilities that are far more permissive, far more flexible and malleable than at the outset of the decade. Not only have the walls come down, but space has opened up, and the instructional hardware is moving about as the students group and regroup. Self-contained rear projection cabinets on wheels for showing films and slides, portable cassette-loaded audio players with headsets for recorded sound, screens on wheels, hand-carried, cartridge-loaded film viewers, and light-weight overhead projectors all let technology go wherever it is needed. The Matzke School near Houston, and the Kirk School near Rochester are open plan schools using these machines. And the proposed School of Education building for the University of Houston indicates that such developments are coming into higher education.

All this use of technology has given rise to backup support facilities for making films and tapes, maintaining equipment, and for teachers seeking the assistance of learning and production experts. Project Reward at Rensselaer and the Center for Instructional Communications at Syracuse serve this role at the college level; the proposed new complex for BOCES #1 (Board of Cooperative Educational Services) at Yorktown, New York, will serve 11 public school districts in a similar way.

And where is the machine in education going? One thing is sure: it represents a big market for industry, so the proliferation of new hardware will continue. The challenge for education is to select technically and economically feasible programs critically and then to find the proper place for them in schoolhouse and college buildings.

EFL's involvement

EFL does not claim an exclusive responsibility for the developments that have transformed the schoolhouse over the last decade. However, in many cases, the innovations described in these pages have been stimulated, encouraged, or accelerated by EFL grants. EFL, like most foundations, cannot itself change the course of history. But it can, and did, attempt to speed constructive change to benefit education generally.

EFL's involvement followed ground rules set forth in its charter, which limits its activities to the support of research and experimentation and the dissemination of knowledge about educational facilities. Thus, EFL cannot make gifts of buildings or even building plans for an institution. What it can do is to invest the risk capital required in the development of new and promising solutions to the problems of design, planning, and construction of schools, colleges, and universities in the United States and Canada.

In general, EFL's activities fall into four major areas. First, many of its grants and projects are concerned with over-all institutional planning to facilitate orderly growth of institutions at all levels. Others are concerned with the design and construction of the elements, the special parts of education's physical environment—classrooms, laboratories, libraries, dormitories, auditoriums, gymnasiums, and the like. Many grants and programs have been concerned with the increasingly important tools of education. Still others aim at enlarging the public knowledge by providing information on school and college facilities for those who make decisions about building and equipment.

In 10 years of operation, EFL has committed more than $10 million to American schools and colleges in support of 489 projects. At the same time, EFL itself has conducted 64 self-administered programs at a cost of more than $2.8 million. In EFL's early years, its emphasis tended to be on elementary and secondary school projects, shifting later to help meet some of the problems posed by the enrollment boom in the colleges and universities.

The 12-month period of this report covers 78 projects totaling $1,331,660 and 46 self-administered programs amounting to $414,833. A brief description of each will be found in a schedule of grants and a schedule of self-administered projects on succeeding pages.

EFL's reports

EFL 's programs and the efforts of others to produce superior facilities and equipment for education could have little impact in the nation if such developments were not brought to the attention of architects, educators, governing boards, and the public. Recognizing this, EFL has from its inception carried on an active publishing program, aimed at disseminating knowledge of the field to those involved in making decisions about educational facilities. EFL 's publications, primarily paperbound reports and books, are written and designed to appeal to professionals and laymen alike, and indeed are widely read by such nonprofessional decision-makers as school board members, citizens' groups, and college trustees.

EFL 's publications include four series: *Profiles of Significant Schools* report on the design of individual schools or collections of schools of the same building type; *Case Studies of Educational Facilities* provide information on specific solutions to problems in school and college planning, design, and construction; *Technical Reports* cover topics of interest primarily to specialists in architecture, engineering, and other technical areas; The EFL *College Newsletter* is issued periodically to college administrators in an attempt to keep them abreast of the latest developments in campus planning and architecture.

In addition, EFL publishes individual reports on major areas of concern in educational facilities planning and development; for example, *Bricks and Mortarboards: A Report on College Planning and Building, The School Library: Facilities for Independent Study in the Secondary School, Design for ETV—Planning for Schools with Television,* and *Educational Change and Architectural Consequences,* a report on recent trends in

primary and secondary school design. Earlier annual reports still in print include *The Schoolhouse in the City* and *Campus in the City*.

As of December 31, 1968, EFL had published 64 reports and had distributed almost 2 million copies of them. The distribution included more than 486,000 copies of the 17 published *Profiles* and close to 270,000 copies of the 12 *Case Studies*. In addition to EFL's own publishing program, other agencies have published and distributed more than 85 reports on EFL-sponsored projects or research activities. An EFL-supported conference resulted in the publication last year by Frederick A. Praeger, Inc., of a book entitled *The Schoolhouse in the City*.[1] The book earned for EFL the 1969 award of the National Council for the Advancement of Education Writing for "Writing making an outstanding contribution to public understanding of educational problems."

In addition, the following books include articles by members of the EFL professional staff: *American Education Today*. Edited by Paul Woodring and John J. Scanlon. New York: McGraw-Hill Book Company, Inc., 1960. *Campus 1980—The Shape of The Future In American Higher Education*. Edited by Alvin C. Eurich. New York: Delacorte Press, 1968. *Higher Education: Some Newer Developments*. Edited by Dr. Samuel Baskin. New York: McGraw-Hill Book Company, Inc., 1965. *Revolution In The Schools*. Edited by Ronald Gross and Judith Murphy. New York: Harcourt Brace, 1964. *The Schoolhouse In The City*. Edited by Alvin Toffler. New York: Frederick A. Praeger, 1968. *The Study of Campus Cultures*. Edited by Terry Lunsford. Boulder, Colorado: Western Interstate Commission for Higher Education, 1963. *The Unfinished Journey—Issues In American Education*. New York: The John Day Company, 1968.

EFL's regional centers

EFL's programs and impact are dependent in part on the operation of two regional centers which serve to help stimulate some of the liveliest

[1] Toffler, Alvin, ed. *The Schoolhouse in the City*. New York: Frederick A. Praeger, Inc., 1968.

developments in educational facilities in the nation. To maintain direct contact with the western states, including Hawaii, Alaska, and American possessions and trust territories in the Pacific, EFL maintains its Western Regional Center at the School Planning Laboratory of Stanford University's School of Education. Similarly, a branch is maintained at the School Planning Laboratory of the University of Tennessee to serve the southeastern states.

A description and an accounting of EFL projects initiated or extended in 1968, a list of its self-administered projects for the year, and a catalogue of EFL and project publications in print are set forth on the succeeding pages.

Financial Statements

S. D. LEIDESDORF & CO.
CERTIFIED PUBLIC ACCOUNTANTS
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ACCOUNTANTS' REPORT

To the Board of Directors
Educational Facilities Laboratories, Inc.
New York, N. Y.

We have examined the statement of assets and liabilities of Educational Facilities Laboratories, Inc., as at December 31, 1968, and the related statement of income, grants and expenses for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the assets and liabilities of Educational Facilities Laboratories, Inc., at December 31, 1968, and a summary of its transactions for the year then ended, on a basis consistent with that of the preceding year.

S. D. Leidesdorf & Co.

New York, N. Y.
February 4, 1969

Exhibit A

Educational Facilities Laboratories, Inc.

Statement of Assets And Liabilities

as at December 31, 1968

ASSETS		
Cash		$ 242,799
Investment in commercial paper—at cost plus accrued interest—maturing in 1969		401,541
Grant receivable from The Ford Foundation—Note A		3,650,000
Sundry advances and deposits		8,189
		$4,302,529
LIABILITIES		
Unpaid grants		$ 245,550
Accounts payable and accrued expenses		51,974
Payroll taxes withheld		2,569
Total Liabilities		300,093
Deferred income from grant—Note A		4,000,000
Excess of income over grants and expenses:		
Balance as at December 31, 1967	$134,386	
(Excess) of grants and expenses over income for the year ended December 31, 1968—Exhibit B	(131,950)	
Balance as at December 31, 1968		2,436
		$4,302,529

Red figures are denoted by ( ).

Note A—In 1965, The Ford Foundation made a grant of $10,000,000 to the Corporation payable at the rate of $2,000,000 per year through 1970. In December 1968, the Corporation received $350,000 applicable to 1969, which has been included in the caption "Deferred income from grant." The grant is subject to certain restrictions relating, among other matters, to the maintenance by the Corporation of its tax exempt status and the expenditure or commitment, within a specified period of time, of funds received under the grant.

Note B—The Corporation has a non-contributory retirement plan for the benefit of all of its employees. Contributions vest to the benefit of employees as made and all costs under the plan are funded as accrued.

General—The accompanying financial statements have been prepared on the accrual basis, in conformity with generally accepted accounting principles, except that it is the policy of the Corporation to charge all leasehold improvements and purchases of furniture and equipment directly to expense accounts.

The unexpended balance of self-administered projects authorized aggregates approximately $400,000.

Exhibit B

Educational Facilities Laboratories, Inc.

Statement of Income, Grants and Expenses

for the year ended December 31, 1968

Income:				
Grant received from The Ford Foundation—Note A				$2,000,000
Interest earned on investments				18,944
				2,018,944
Grants approved, less refunds			$1,331,660	
Project expenses, less reimbursements of $45,140			369,693	
General and administrative expenses:				
Compensation and employee benefits:				
Compensation—Directors	$ 4,750			
Salaries	215,111			
Other compensation	13,833			
Payroll taxes	6,117			
Contributions to employees' retirement plan—Note B	31,828			
Insurance	11,574	$283,213		
Travel		22,351		
Other expenses:				
Office supplies and expenses	11,224			
Postage	4,093			
Heat, light and power	1,494			
Telephone and telegraph	14,695			
Printing, multilithing and photostating	11,768			
Rent	36,467			
Conferences and meetings	4,772			
Professional fees	3,552			
Books and periodicals	4,290			
Repairs and maintenance	1,110			
Insurance—general	1,671			
Furniture and equipment—net of disposals	13,004			
Leasehold improvements	32,937			
Miscellaneous	2,900	143,977		
Total general and administrative expenses			449,541	
Total grants and expenses				2,150,894
(Excess) of grants and expenses over income—Exhibit A				($ 131,950)

Red figures are denoted by ( ).

See notes on Exhibit A.

Schedule of Grants

	1968
Alice Lloyd College, Pippa Passes, Kentucky. To assist in developing economical distribution of utility services to the new science building.	$5,000
American Association of Junior Colleges, Washington, D.C. For the publication and distribution of a report on the 1967 Airborne Tour.	4,500
American Association of Junior Colleges, Washington, D.C. Continued support for the Junior College Facilities Information Service which provides guidance and information for the planning of new institutions and the expansion of existing ones. A list of reports is included under Project Publications. Grants of $40,000 in 1965 and $105,000 in 1967.	64,000
Florida Association of the American Institute of Architects, Coral Gables. Aid for a conference on elementary school facilities to be co-sponsored by the Florida State Department of Education.	1,000
American Institute of Architects Foundation, Washington, D.C. For a film on the special problems of the urban schoolhouse. Two grants.	31,000
Armstrong County School District, Manorville, Pennsylvania. For the development of a Pennsylvania School Building Systems Program.	50,000
Association of Research Libraries, Washington, D.C. Support for a study of the comparative costs of options for storage of library books.	22,850
Baltimore City Public Schools, Maryland. For research and development of quickly erected, multistory, loft-type, semi-industrialized school buildings.	12,000
Bedford-Stuyvesant D&S Corporation, Brooklyn, New York. Physical planning for a proposed college for Bedford-Stuyvesant. Two grants.	18,000
Berkeley Unified School District, Berkeley, California. For the planning of a community learning center.	22,000
Blythedale Children's Hospital, Valhalla, New York. For planning a recreation-therapy park for a program of adapted outdoor physical education for the physically handicapped.	15,000
Board of Cooperative Educational Services (BOCES), Yorktown Heights, New York. For planning a new regional educational services center.	12,000
Branford, Connecticut, Public Schools. To enable planners of the new middle schools to visit significant schools.	1,334
Brown University, Providence, Rhode Island. For a study of the feasibility of an economical indoor playing field and exploration of the possible adaptation of the existing ice hockey rink so that it can also be used for general assembly.	(1,192)*

* Refund

Buffalo-University Foundation, Inc., Buffalo, New York.
To enable top academic and planning personnel to visit new European universities using innovative building design and pioneering constructional concepts. **$5,000**

California State College, Los Angeles, California.
For the study of socio-psychological factors in planning a new student union building. **14,200**

California Teachers Association, Burlingame, California.
To support the 7th Annual California Conference on Higher Education. **2,000**

The Regents of the University of California, Berkeley.
Continued support of a program to develop a component system for student housing (URBS). This phase includes the whole bidding process and the awarding of contracts. Grants of $100,000 in 1965, $155,000 in 1966, and $26,700 in 1967. **100,000**

Capistrano Unified School District, Capistrano Beach, California.
Aid in planning an oceanside facility for a marine vocational-technical center and marine science laboratory. **18,000**

Carroll County Board of Education, Westminster, Maryland.
For a comprehensive study of the Westminster Senior High School in order to convert it to a middle school. **3,000**

Casady School, Oklahoma City, Oklahoma.
For the second printing and distribution of 500 copies of *The Prepared Environment.* The report is based on findings resulting from a previous grant of $9,750 in 1963 for the development of new facilities for early childhood education. Grant of $1,000 in 1967 covered preparation, first printing, and initial distribution of the report, which is available from the Casady School, Oklahoma City, Oklahoma 73120. **600**

Cayuga County Catholic School Board, Auburn, New York.
For a comprehensive study of the school buildings in Cayuga County, New York. **5,000**

Chapman College, Orange, California.
Consultant help to schools and colleges planning facilities for physical education. **15,000**

Chesapeake College, Centreville, Maryland.
Planning for oceanographic research facilities and short-term dormitory accommodations. **10,000**

Cleveland, Ohio, Public Schools, Board of Education.
For the remodeling of the donated General Electric facility for classroom, office, and general production areas for various Cleveland-based industries. **20,000**

Coburn Classical Institute, Waterville, Maine.
For the development of an open plan, multiple-use building as the first structure in a new campus. **7,500**

Compton Union High School District, California.
To plan a total community system for occupational education for all secondary schools in the district. **24,000**

Detroit Institute of Technology, Michigan.
For preparation of a digest of the report *Detroit Institute of Technology . . . Today, Tomorrow, and in the Generation Ahead,* copies of which are available from the Detroit Institute of Technology, 2300 Park Avenue, Detroit, Michigan 48201. **$2,500**

Earlham College, Richmond, Indiana.
To develop equipment and furniture for flexible multi-discipline science laboratories. **25,000**

Educational Products Information Exchange Institute, New York City.
To assist in compiling a product report on the physical characteristics, cost, availability, and compatibility of programming for 8 mm. and similar sound and silent projectors. **3,200**

Florida State Department of Education, Tallahassee.
Continued support for a project to develop a school building system for Florida's climate and economy. Grants of $31,000 in 1966 and $54,177 in 1967. **54,177**

Friends Select School, Philadelphia, Pennsylvania.
For special studies for rooftop playground on dual-occupancy building shared by Friends Select School and a 20-story office tower. **5,000**

Hammond, Indiana, Public Schools Board of Education.
For the design and planning of the Wallace Elementary School. **7,200**

Hampshire College, Amherst, Massachusetts.
Assessing the impact of technological change on the planning of a proposed library. **4,500**

President and Fellows of Harvard College, Cambridge, Massachusetts.
For the printing and distribution of findings of a conference on the use of technology in the new library of the Harvard Graduate School of Education. The report, *Library Technology and Architecture,* is available from the Library of the Graduate School of Education of Harvard University for $1.00. Initial grant of $5,000 in support of the conference in 1967. **2,590**

Hawaii Department of Education, Honolulu.
To enable personnel to visit significant schools in other states. **4,500**

Hendrix College, Conway, Arkansas.
For the preparation, printing, and distribution of the report, *Hendrix College Builds an Underground Library,* which is available from the College. Initial grant for planning of $20,000 in 1967. **5,000**

Howard County Board of Education, Clarksville, Maryland.
For costs of professional services needed in competitive bidding on Howard County Elementary Schools. **5,987**

Howard County Board of Education, Clarksville, Maryland.
For the design of the first high school for the new town of Columbia City. **10,000**

Human Resources Center, Albertson, New York.
For planning adapted indoor physical education facilities for physically handicapped children. **15,000**

Iberville Parish School Board, Plaquemine, Louisiana.
To enable personnel to visit significant school facilities in other states. **$4,000**

Jefferson County School District R-1, Lakewood, Colorado.
For design assistance in connection with purchasing furniture and equipment for new schools. **6,000**

Lake Villa Community Consolidated School District #1, Illinois.
For the innovative aspects of a new kind of subdivisible auditorium. **16,000**

Los Angeles City Board of Education, California.
To involve the community in the planning of Hooper Avenue School. **8,000**

Manhattanville College, Purchase, New York.
(Acting as fiscal agent for Harlem Preparatory School.) For one-half the cost of architectural planning and professional advice in the purchase of furniture and equipment for Harlem Preparatory School. **7,000**

The Maryland Institute, Baltimore.
Aid for a conference on planning an educational-cultural complex. **1,000**

University of Massachusetts-Boston Senate Executive Committee.
To develop alternative proposals for an in-city university. **5,800**

Mifflin County School District, Lewistown, Pennsylvania.
For personnel to visit SCSD schools in California. **2,000**

Milton Academy, Massachusetts.
For the development of flexible science laboratory furniture and equipment for a new science building. **5,000**

Model Inner City Community Organization, Washington, D.C.
For planning educational facilities for the Shaw Urban Renewal Project. Two grants. A report, *Shaw School and the MICCO Process,* is available from the Organization. **25,444**

Montessori School of Stamford, Connecticut.
For a film on educational facilities at the Montessori school. Two grants. **20,900**

Montreal Catholic School Commission, Quebec, Canada.
For the further development of a system of building components for Montreal schools (Research Program for School Facilities). Grants totaling $184,000 in 1967. A report, *Contract Documents and Performance Specifications,* is available from the Commission. **96,000**

University of Montreal, Quebec, Canada.
For development plans for joint-use educational facilities for the Cite Concordia area of downtown Montreal. **47,750**

Nanuet Public Schools, New York.
For planning an instructional learning center to serve elementary, middle, and high schools and to relate to a public library. **3,000**

National Academy of Sciences, Washington, D.C.
To study guidelines for long-range facility planning for construction personnel training centers. **$3,600**

National Association for the Education of Young Children, Washington, D.C.
For a documentary study of playgrounds. **18,500**

Province of New Brunswick, Fredericton, New Brunswick, Canada.
Partial support of a province-wide educational facilities research project. **10,000**

The New England School Development Council, Cambridge, Massachusetts.
For the development of a school enrollment projection workbook. **45,000**

Newton Public Schools, Massachusetts.
To develop plans for the renovation of and addition to Newton South High School, construction of a new junior high school, and the rebuilding of existing plant at Newton High School. **5,000**

New York City Educational Construction Fund.
For the planning and design of its joint-occupancy projects. **85,000**

Pitzer College, Claremont, California.
To assist in the operation of the new studio and audiovisual center. **10,000**

Purdue Research Foundation, Lafayette, Indiana.
For a trial installation of a section of an outdoor hockey rink. **7,000**

Reed Union School District, Belvedere-Tiburon, California.
For planning a new middle school, particularly the design and equipping of a resources center and development of a site for outdoor education. **7,500**

Rensselaer Polytechnic Institute, Troy, New York.
For a report on the programming, planning, and design of educational facilities for brain injured, emotionally disturbed, and mentally retarded children. **8,500**

Research and Design Institute, Providence, Rhode Island.
To develop criteria for furnishings and equipment for the Steuart Hill Elementary School in Baltimore. **10,000**

St. Edmund's Academy, Pittsburgh, Pennsylvania.
To determine the feasibility of a proposed new physical education facility which will incorporate various new products and methods for providing ice and other surfaces within the same structure. **5,000**

San Mateo Union High School District, California.
For a conference on planning Marina High School. **8,000**

School Facilities Council, California Chapter, Los Angeles.
For a conference on "Planning for Lifetime Learning." **2,000**

Shepaug Valley Regional School District No. 12, Washington Depot, Connecticut.
To plan a new high school/middle school complex sharing common core facilities. **3,000**

Shoreline Public Schools, Seattle, Washington.
To use computer technology, particularly the PERT method, in the development of educational specifications in planning for a third high school. **$3,500**

Southwest Educational Development Laboratory, Austin, Texas.
To plan a new regional Educational Development Laboratory. **6,000**

Leland Stanford Junior University, Stanford, California.
To support a building systems information clearinghouse as a supplemental program of the School Planning Laboratory of the School of Education. A report, *Building Systems Information Clearinghouse Newsletter*, is available from the Systems Division of the School Planning Laboratory. **25,000**

Leland Stanford Junior University, Stanford, California.
Continued support for operation of the School Planning Laboratory (SPL) of Stanford's School of Education as a Western Regional Center of EFL. A variety of reports and *SPL Reports*, a periodic newsletter of SPL activities from the School Planning Laboratory. A list of reports issued by the Laboratory is included under Project Publications. Grants of $56,700 in 1958, $80,000 in 1959, $128,300 in 1961, $147,300 in 1962, $111,000 in 1963, $98,000 in 1964, $105,750 in 1965, $123,000 in 1966, and $110,000 in 1967. **66,420**

Syracuse University, New York.
To plan a school [illegible] work within the urban community. **30,000**

Tennessee, University of, Knoxville, Tennessee.
Continued support for the operation of the School Planning Laboratory. The Laboratory's activities include the scheduling of workshops and institutes, attempted solutions of common problems in educational facilities, service as a clearinghouse of information, and publication and distribution of reports throughout the region. A list of reports from the Laboratory will be found under Project Publications. Grants of $38,500 in 1961, $52,000 in 1962, $70,000 in 1963, $70,000 in 1964, $73,850 in 1965, $78,375 in 1966, and $87,050 in 1967. **68,000**

Tulare County Superintendent of Schools, Visalia, California.
Assistance in planning a model outdoor education conservation center. **25,000**

The Public Schools of Wilmette, Illinois.
For the planning of a new Educational Services Center. **2,500**

Miscellaneous: To hold two seminars in New York City on the role of the urban school and college in relation to the community. (Grant made and returned: Project subsequently supported through self-administered programs.) **2,800**

TOTAL **$1,331,660**

Schedule of Self-Administered Projects

	Unexpended Balance 12/31/67	Authorized 1968	Payments 1968	Unexpended Balance 12/31/68
Preparation, printing, and distribution of *Design for ETV: Planning for Schools with Television*, a study of present facilities for television in schools and recommended designs for schools of the future. A total of 90,086 copies have been distributed. (Authorizations of $60,000 in 1959, $83,116 in 1960, $12,000 in 1961, $12,000 in 1963, $12,000 in 1965, and $15,000 in 1967.)	**$(2,575)**		**$(795)**	**$(1,780)**
Preparation, printing, and distribution of *Profiles of Significant Schools*, a series describing elementary and secondary schools of particularly important design. To date, 17 Profiles have been published. Fourteen are out of print. All told, 486,098 copies have been distributed. (Appropriations of $20,000 in 1959, $60,000 in 1960, $30,000 in 1961, $45,000 in 1962, $30,000 in 1963, $10,000 in 1964, $60,000 in 1965, $65,000 in 1966, and $30,000 in 1967.)	**21,871**		**11,956**	**9,915**
Development, publication, and distribution of *College Students Live Here*, a report on the design of college and university housing. A total of 27,637 copies have been distributed. (Authorizations of $26,000 in 1959, $29,000 in 1960, $25,000 in 1962, $5,000 in 1966, and $10,000 in 1967.)	**3,196**	**$10,000**	**6,979**	**6,217**
School fire safety program, including the preparation, printing, and distribution of information to school administrators on fire safety in the schools. Some 275,000 copies of a report, *Ring the Alarm*, have been distributed. (Authorizations of $65,000 in 1959, less $40,000 granted to the National Academy of Sciences for the preparation of a publication, *School Fires—An Approach to Life Safety*, available from NAS-BRAB, Washington, D.C. ($2.50), and $10,000 in 1960.)	**1,494**		**720**	**774**
Publication and distribution of *Case Studies of Educational Facilities*, a series of reports on specific facilities types in schools, colleges, and universities. Twelve reports were published as of December 31, 1968, and a total of 269,881 copies have been distributed. (Appropriations of $30,000 in 1961, $50,000 in 1962, $15,000 in 1964, $35,000 in 1965, $30,000 in 1966, and $30,000 in 1967.)	**12,528**		**11,290**	**1,238**

	Unexpended Balance 12/31/67	Authorized 1968	Payments 1968	Unexpended Balance 12/31/68
Self-administered program to aid colleges and universities with their physical problems. Program has included payments of consultants, meetings, modest planning grants to colleges, and publication of a report, *To Build or Not To Build,* on college space utilization, and of EFL's *College Newsletters.* A total of 25,913 copies of *To Build* and 98,200 *Newsletters* have been distributed. (Appropriations of $36,790 in 1961, $35,030 in 1962, $30,000 in 1963, $10,000 in 1964, $55,000 in 1965, and $27,500 in 1966.)	**$12,517**	**$55,000**	**$40,920**	**$26,597**
For a study of the design of school libraries and publication and distribution of the report, *The School Library: Facilities for Independent Study in the Secondary School.* A total of 73,226 copies have been distributed. (Appropriations of $25,000 in 1961, $20,000 in 1962, $12,000 in 1963, $11,500 in 1964, $7,000 in 1965, and $14,000 in 1966.)	**641**	**15,000**	**11,499**	**4,142**
Development of a do-it-yourself handbook for use by local school boards in the prediction of school population patterns. The handbook will provide formulas for fast-growing communities and for large cities where shifts of population must be predicted. It will offer guidelines to the use of computers in making enrollment predictions. (Authorization of $15,000 in 1961.)	**5,656**	**(5,656)***		
A study of practical and inexpensive ways to cut the transmission of solar heat through large glass areas of schools without eliminating natural illumination. Development of one solution, a metalized mylar film to be applied to window areas. (Appropriations of $5,000 in 1961, $8,000 in 1962, $3,972 in 1963, and $8,000 in 1964.)	**1,150**		**469**	**681**
Preparation, production, and circulation of a film describing new developments in the design and construction of school buildings: *To Build a Schoolhouse.* (Appropriations of $65,000 in 1961, $54,000 in 1964, and $12,000 in 1967.) (Information on obtaining this film can be found under EFL's list of publications.)	**9,270**	**16,000**	**13,831**	**11,439**

*Authorization to decrease.

	Unexpended Balance 12/31/67	Authorized 1968	Payments 1968	Unexpended Balance 12/31/68
A national survey of transportable school space used to offset overcrowding or shifting school populations. Development of several prototype projects to demonstrate that "movable" need not be a synonym for "substandard" in the creation of school space. A total of 28,513 copies of the report, *Relocatable School Facilities*, have been distributed. (Appropriations of $25,000 in 1962, $35,000 in 1963, $17,000 in 1964, and $6,000 in 1966.)	**$757**	**$7,000**	**$5,156**	**$2,601**
Preparation, publication, and distribution of a report to college trustees and other decision-makers on the dimensions and complexity of the physical problems faced by the colleges and universities in an era of rapid enrollment growth, exploding knowledge, and changing technology. A total of 44,910 copies of the report, *Bricks and Mortarboards*, have been distributed. (Appropriations of $28,000 in 1962, $40,000 in 1963, $20,000 in 1964, and $15,000 in 1966.)	**4,711**		**621**	**4,090**
Preparation of a manual on the operation, design, and engineering of food service areas for elementary and secondary schools. Includes questions such as centralized vs. decentralized kitchens and new developments such as the use of frozen foods, vending machines, electronic cooking, and automation. (See Self-Administered Projects: Technical Reports.) (Authorization of $24,500 in 1962.)	**(370)**		**(370)**	
Preparation of a publication on new and innovative science buildings for colleges and universities. The report will include a critical analysis of buildings completed or under construction and an analysis of needs not yet expressed in existing science buildings. (Authorization of $35,000 in 1963.)	**11,594**		**4,387**	**7,207**
To work directly with city school systems in improving the design of the urban schoolhouse. The program tackles the questions of obsolescence, the need to educate or re-educate adults, joint-occupancy, air rights, transportable school space, inclusion of schools in urban renewal projects, high-rise schools, and conversion of commercial space for educational use. (Appropriations of $50,000 in 1963, $25,000 in 1965, and $12,000 in 1967, less $5,000 grant to Syracuse, New York, Public Schools.)	**11,066**		**10,696**	**370**

	Unexpended Balance 12/31/67	Authorized 1968	Payments 1968	Unexpended Balance 12/31/68
To assist secondary schools in the use of computers in developing schedules for educational programs using variable grouping systems. Preparation and distribution of a non-technical report for school administrators on the procedures developed by Massachusetts Institute of Technology. A total of 50,200 copies of the report, *School Scheduling by Computer/The Story of GASP*, have been distributed. (Appropriations of $15,250 in 1963, $6,000 in 1964, and $4,000 in 1966.)	**$1,003**		**$466**	**$537**
A program to investigate the elementary school library and evolve guidelines that can be widely applicable. (Authorization of $20,000 in 1964, less grant of $8,000 to Mount Vernon, New York, & Tenafly, New Jersey, Boards of Education.)	**5,741**	**$(1,431)***		**5,741**
Improvement of architectural programming of educational institutions and the writing of educational specifications. (Authorization of $10,000 in 1964.)	**1,431**			
Development of design proposals and cost estimates for the conversion of existing large auditoriums into more useful educational space, and for preparation, printing, and distribution of a report, *The High School Auditorium: Six Designs for Renewal*, of which 14,148 copies have been distributed. (Authorization of $30,000 in 1964.)	**1,095**		**663**	**432**
To aid the American Institute of Architects in hosting the U.I.A. School Commission Meeting in the United States in 1966. (Authorization of $15,000 in 1964.)	**3,533**	**(3,533)***		
Preparation and publication of an EFL data file—an index of ideas and information to serve as a continuously accumulating guide to the results of EFL's studies, with cross-reference to more detailed information and related studies, for those professionally concerned with the planning and building of schools. (Authorization of $30,000 in 1964.)	**2,565**	**(2,565)***		
A study to examine the furnishings and surfaces which make up the inside of the schoolhouse. (Appropriation of $15,000 in 1965.)	**439**		**309**	**130**

*Authorization to decrease.

	Unexpended Balance 12/31/67	Authorized 1968	Payments 1968	Unexpended Balance 12/31/68
For the publication of a series of EFL *Technical Reports*. See EFL's *Technical Report No. 1: Acoustical Environment of School Buildings*, of which 12,150 copies have been distributed, *Technical Report No. 2: Total Energy*, of which 22,400 copies have been distributed, and *Technical Report No. 3: 20 Million for Lunch*, of which 8,000 copies have been distributed. (Appropriations of $25,000 in 1965 and $30,000 in 1967.)	**$21,367**	**$30,000**	**$13,845**	**$37,522**
To prepare a handbook for residential development which will provide colleges with normative and comparative data and examples and analyze factors to be considered during the planning process. This will replace, update, and expand *College Students Live Here*. (Authorization of $40,000 in 1965.)	**22,766**		**10,442**	**12,324**
For completion and distribution of a motion picture on geodesic domes for physical education: *Exercise in Economy*. (Appropriation of $8,000 in 1965.) (For information on obtaining this film, see list of EFL publications.)	**933**	**2,000**	**974**	**1,959**
To assist the state school authorities in Pennsylvania to establish a school construction systems development program. (Authorization of $50,000 in 1965.)	**19,245**		**18,075**	**1,170**
To develop closer cooperation between education and industry in order to encourage development of products better suited to educational needs. (Authorization of $65,000 in 1966.)	**1,716**		**932**	**784**
To assist the United States Office of Education in holding a design competition for academic facilities built with federal support under the Higher Educational Facilities Act of 1963, and for distribution of a report on the winning entries. The report, *1966 Design Award Program*, is available from EFL. (Authorization of $10,000 in 1966.)	**1,066**	**(1,066)***		
Preparation, production, and circulation of a film describing the School Construction Systems Development project, and the schools constructed under it. (Authorization of $60,000 in 1966.)	**58,020**			**58,020**

*Authorization to decrease.

	Unexpended Balance 12/31/67	Authorized 1968	Payments 1968	Unexpended Balance 12/31/68
Preparation, production, and distribution of a report on the School Construction Systems Development project, describing the schools constructed under it. The report, *SCSD: the Project and the Schools*, of which 24,176 copies have been distributed, replaces, updates, and expands *SCSD: An Interim Report*. (Authorizations of $30,000 in 1966 and $20,000 in 1967.)	**$602**		**$(361)**	**$963**
To provide schools and colleges with short-term consultant help. (Authorizations of $30,000 in 1966 and $30,000 in 1967.)	**11,360**	**$40,000**	**44,884**	**6,476**
For a conference on the implications of technology for library buildings and the preparation, publication, and distribution of a report on the subject: *The Impact of Technology on the Library Building*, of which 22,915 copies have been distributed to date. (Authorization of $7,500 in 1967.)	**(1,068)**	**9,000**	**1,752**	**6,180**
A study of facilities for technical-vocational education to develop a program for future EFL activities in this general field and report on present practices. (Authorization of $50,000 in 1967.)	**49,663**		**27,618**	**22,045**
The development of Technical Report No. 4, to be based on a national survey of the quality of lighting in schools. (Authorization of $14,000 in 1967.)	**14,000**		**7,000**	**7,000**
A program to collect cost data and performance characteristics of inexpensive space enclosures for athletic facilities. (Authorization of $20,000 in 1967.)	**20,000**		**12,834**	**7,166**
For a program to stimulate and apply significant developmental efforts in computer-aided school planning. (Authorization of $10,000 in 1967.)	**10,000**	**20,000**	**12,911**	**17,089**
To prepare and publish a report on the display and storage of paperback books.		**10,000**	**9,586**	**414**
For the design, printing, and distribution of a report on school planning, *Educational Change and Architectural Consequences*, of which 21,000 copies have been distributed.		**40,000**	**46,935**	**(6,935)**

	Unexpended Balance 12/31/67	Authorized 1968	Payments 1968	Unexpended Balance 12/31/68
For the development, publication, and distribution of a science laboratory planning notebook.		**$25,000**	**$7,058**	**$17,942**
To assist with the planning of schools for the redevelopment area known as Linear City.		**20,000**	**1,874**	**18,126**
To assist predominantly Negro colleges in their facilities planning.		**50,000**	**45,140**	**4,860**
To assist with architectural services and research in joint-occupancy school design in New York City.		**22,500**	**16,850**	**5,650**
To produce a report on *Technology and the Schoolhouse.*		**15,000**	**7,678**	**7,322**
For the publication of a report on a proposed college for Bedford-Stuyvesant.		**24,000**	**10,000**	**14,000**
An investigation to determine the feasibility of providing out-of-city education for New York's inner-city children.		**20,000**		**20,000**
For the study of the conversion and renewal of old schools and the conversion of noneducational space for educational use.		**58,000**	**9**	**57,991**
TOTALS	**$338,983**	**$474,249**	**$414,833**	**$398,399**

OTHER REPORTS FROM EFL

The following publications are available without charge from the offices of EFL: 477 Madison Avenue, New York 10022.

A College in the City: An Alternative.
A report of a new approach to the planning of urban campuses, with facilities dispersed through the community, designed to serve community needs and to stimulate community redevelopment.

Bricks and Mortarboards.
A guide for the decision-makers in higher education: how the colleges and universities can provide enough space for the burgeoning enrollments of this decade; how the space can be made adaptable to the inevitable changes in the educational process in the decades ahead. (One copy available without charge. Additional copies $1.00.)

Campus in the City.
EFL's annual report for 1967 and an essay on the physical problems and trends in planning of urban colleges and universities and their potential role as a catalyst in the remaking of the cities.

College Students Live Here.
A report on the what, why, and how of college housing; reviews the factors involved in planning, building, and financing student residences.

Design for ETV—Planning for Schools with Television.
A report on facilities, present and future, needed to accommodate instructional television and other new educational programs. Prepared for EFL by Dave Chapman, Inc., Industrial Design.

Design for Paperbacks: A How-To Report on Furniture for Fingertip Access.
Physical solutions to the problems of displaying paperback books for easy use in schools.

Educational Change and Architectural Consequences.
A report on school design that reviews the wide choice of options available to those concerned with planning new facilities or updating old ones.

The Impact of Technology on the Library Building.
A position paper reporting an EFL conference on this subject.

Relocatable School Facilities.
A survey of portable, demountable, mobile, and divisible schoolhousing in use in the United States and a plan for the future.

The Schoolhouse in the City.
An essay on how the cities are designing and redesigning their schoolhouses to meet the problems of real estate costs, population shifts, segregation, poverty, and ignorance.

The School Library: Facilities for Independent Study in the Secondary School.
A report on facilities for independent study, with standards for the size of collections, seating capacity, and the nature of materials to be incorporated.

School Scheduling by Computer/The Story of GASP.
A report of the computer program developed by MIT to help colleges and high schools construct their complex master schedules.

SCSD: The Project and the Schools.
A second report on the project to develop a school building system for a consortium of 13 California school districts.

Profiles of Significant Schools

A series of reports which provide information on some of the latest developments in school planning, design, and construction.

Schools Without Walls—open space and how it works.

Three High Schools Revisited: Andrews, McPherson, and Nova.

Middle Schools—controversy and experiment.

Case Studies of Educational Facilities

A series of reports which provide information on specific solutions to problems in school planning and design.

8. The Schools and Urban Renewal.
A case study of the Wooster Square renewal project in New Haven, Connecticut.

9. Air Structures for School Sports.
A study of air-supported shelters as housing for playfields, swimming pools, and other physical education activities.

10. The New Campus in Britain: Ideas of Consequence for the United States.
Recent British experience in university planning and its implications for American educators, architects, and planners.

11. Divisible Auditoriums.
Operable walls convert little-used auditoriums and theaters into multipurpose, highly utilized space for the performing arts and instruction.

12. The High School Auditorium: Six Designs for Renewal.
Renovation of little-used auditoriums in old and middle-aged schools to accommodate contemporary educational, dramatic, and music programs.

Technical Reports

1. Acoustical Environment of School Buildings.
Acoustics of academic space in schools. An analysis of the statistical data gathered from measurement and study.

2. Total Energy.
On-site electric power generation for schools and colleges, employing a single energy source to provide light, heat, air conditioning, and hot water.

3. 20 Million for Lunch.
A primer to aid school administrators in planning and evaluating school food service programs.

College Newsletter
A periodical on design questions for colleges and universities.

Films

Exercise in Economy.
A 15-minute color film describing the planning, construction, and operation of a geodesic-domed field house at Walt Whitman High School, Bethesda, Maryland. Available on loan without charge from EFL in care of Association Films, Inc., 600 Madison Avenue, New York, New York 10022, and for purchase at $90.00 from EFL.

To Build a Schoolhouse.
A 28-minute color film outlining the latest trends in school design. Available on loan without charge from EFL in care of Association Films, Inc., 600 Madison Avenue, New York, New York 10022, and for purchase at $91.50 from EFL.

Room to Learn.
A 22-minute color film on The Early Learning Center in Stamford, Connecticut, an open-plan early childhood school with facilities and program reflecting some of the best current thinking. Prepared by The Early Learning Center under a grant from EFL and available on loan without charge from Association Films, Inc., 600 Madison Avenue, New York, New York 10022, and for purchase at $125.00 from Association Films, Inc.

Project Publications

The following publications may be obtained by writing to the listed address.

American Association of Junior Colleges

Bibliography of Facilities Information, July 1969. (No charge)
A Primer for Planners. ($1.50)
The Community College Commitment to the Inner City Bud Widenthal. ($.75)
The College Facilities Thing Bob H. Reed and William A. Harper ($2.50)
The Interim Campus Richard C. Richardson, Jr. ($1.50)
Premises Planning Student Personnel Facilities Charles C. Collins ($1.00)

Available from American Association of Junior Colleges, 1315 Sixteenth Street, N.W., Washington, D.C. 20036.

American Association of Physics Teachers and American Institute of Physics

Modern Physics Buildings: Design and Function R. Ronald Palmer, Project Director, William Maxwell Rice, Project Architect.

Available from Progressive Architecture Library, Reinhold Publishing Corporation, 430 Park Avenue, New York, New York 10022. $13.50.

Physics Buildings Today. ($2.50)
Checklist for Physics Buildings. ($1.00)

Available from American Institute of Physics, 335 East 45th Street, New York, New York 10017.

American Institute of Architects (in collaboration with the Office of Education of the Department of Health, Education and Welfare)

1966 Design Award Program.

Available from EFL, 477 Madison Avenue, New York, New York 10022. No charge.

Architectural Research Group, A & M College of Texas

Lift-Shape Construction Ben H. Evans and James H. Marsh III.
Shelter for Physical Education: A Study of the Feasibility of the Use of Limited Shelters for Physical Education
William G. Wagner, Ben H. Evans, Matthew A. Nowak.

Available from EFL, 477 Madison Avenue, New York, New York 10022. No charge.

Arizona State University

Education: 1980 A.D.

Available from Bureau of Educational Research and Services, College of Education, Arizona State University, Tempe, Arizona 85281. $1.00.

Association of College Unions – International

Planning College Union Facilities for Multiple-Use.

Available in single copies from Editor of Publications, Association of College Unions – International, 770 Langdon Street, Madison, Wisconsin 53706. No charge.

Barrington Public Schools, Illinois

Barrington Middle School: A Report 1966/Barrington, Illinois.

Available from Barrington Middle School, Barrington, Illinois 60010. No charge.

Building Research Advisory Board/National Academy of Sciences—National Research Council

Modular Practice, the Schoolhouse and the Building Industry Darlington, Isenberg, and Pierce, eds.

Available from John Wiley and Sons, Inc., 605 Third Avenue, New York, New York 10016. $8.50.

School Fires — An Approach to Life Safety.

Available from BRAB/NAS, Washington, D.C. 20418. $2.50.

Brevard County, Board of Public Instruction, Florida

New Concepts in School Design, an Accent on Accessibility.

Available from Dr. B. Frank Brown, Principal, Melbourne High School, 1050 Babcock Street, Melbourne, Florida 32901. No charge.

University of California, Berkeley

Dorms at Berkeley Sim Van der Ryn and Murray Silverstein.

Available from EFL, 477 Madison Avenue, New York, New York 10022. No charge.

Casady School

The Prepared Environment Margaret Howard Loeffler.

Available from the Casady School, Oklahoma City, Oklahoma 73120 or from EFL. No charge.

Cleveland, Ohio, Public Schools

Supplementary Educational Center.

Available from Karl Johnson, Room 317, Cleveland Public Schools, 1380 East 6th Street, Cleveland, Ohio 44114. No charge.

Community College Planning Center, School of Education, Stanford University

A Study on Studying.
Windows to the Future.

Available from Community College Planning Center, School of Education, Stanford University, Stanford, California 94305. No charge.

Conference Board of the Mathematical Sciences

Buildings and Facilities for the Mathematical Sciences J. Sutherland Frame with John W. McLeod.

Available from Printing Office, Columbia University Press, 605 West 115th Street, New York, New York 10027. $2.00.

Council of Chief State School Officers

Purchase Guide for Programs in Science, Mathematics, Modern Foreign Languages.

Available from Ginn and Company, Statler Office Building, Boston, Massachusetts 02117. $4.60.

Detroit Institute of Technology

A College Grows in the Inner-City Frank V. Carioti.

Available from EFL, 477 Madison Avenue, New York, New York 10022. No charge.

Detroit Institute of Technology . . . Today, Tomorrow, and in the Generation Ahead.

Available from the Detroit Institute of Technology, 2300 Park Avenue, Detroit, Michigan 48201. No charge.

Duke University

Computer Aided Campus Planning for Colleges and Universities.

Available from Duke University, Durham, North Carolina 27706.

East Orange, New Jersey, Public Schools Board of Education

GHQ for Learning.

Available from Mr. Robert Seitzer, Superintendent of Schools, 21 Winans Street, East Orange, New Jersey 07017. No charge.

Educational Planning Service, Colorado State College

Designs for Small High Schools Glendon P. Nimnicht and Arthur R. Partridge.
A Plan for a Small High School — A Case Study of Planning a Small School at Harvard, Massachusetts Glendon P. Nimnicht and Arthur R. Partridge.

Available from Educational Planning Service, Colorado State College, Greeley, Colorado 80631. No charge.

George Washington University

Design for Medical Education.

Available from Public Information Office, The George Washington School of Medicine, 1335 H Street, N.W., Washington, D.C. 20005. No charge.

Harvard University

Library Technology and Architecture.

Available from the Library, Graduate School of Education, Harvard University, Cambridge, Massachusetts 02138. $1.00.

Hendrix College

Hendrix College Builds an Underground Library.

Available from Hendrix College, Conway, Arkansas 72032. No charge.

Indiana University and Purdue University

Sketchbook — Architecture and Equipment for the Language Laboratory Charles William Brubaker.

Available from EFL, 477 Madison Avenue, New York, New York 10022. No charge.

Los Angeles Fire Department

Operation School Burning: Official Report on a Series of School Fire Tests Conducted by the Los Angeles Fire Department. ($4.75)

Operation School Burning No. 2: Offical Report on a Series of Fire Tests in an Open Stairway, Multistory School. ($5.75)

Available from National Fire Protection Association International, 60 Batterymarch Street, Boston, Massachusetts 02110.

Macalester College

Planning for the Arts.

Available from Macalester College, St. Paul, Minnesota 55101. No charge.

Martinsville, Virginia

Science Unit — Martinsville, Virginia, Senior High School: A Report.

Available from EFL, 477 Madison Avenue, New York, New York 10022. No charge.

University of Miami

Learning and Instructional Resources Center (Revised Edition).

Available from University of Miami, Coral Gables, Florida 33146. No charge.

University of Michigan

SER 1: Environmental Abstracts. ($15.00)

SER 2: Environmental Evaluation. ($5.00)

SER 3: Environmental Analysis. ($4.00)

The Effect of Windowless Classrooms on Elementary School Children ($2.00)

Available from Publications Distribution Service, The University of Michigan, 615 East University, Ann Arbor, Michigan 48106.

Enlarged City School District of the City of Middletown, New York

Electronic Classroom Harry A. Price.

Available from David Trachtenberg, Board of Education, Enlarged City School District of the City of Middletown, 159 Prospect Avenue, Middletown, New York 10940. No charge. (A film, also entitled *Electronic Classroom*, is available from the same source without charge.)

Minnesota School Facilities Council

Meeting the Challenge.

Available from Minnesota School Facilities Council, 2650 Stinson Boulevard, Minneapolis, Minnesota 55148. $3.00.

Model Inner City Community Organization

Shaw School and the MICCO Process.

Available from Model Inner City Community Organization, 1901 Eleventn Street, N.W., Washington, D.C. 20001. No charge.

Montreal Catholic School Commission

Contract Documents and Performance Specifications.

Available from Research in School Facilities Project, Montreal Catholic School Commission, 3737 Sherbrooke Street, West, Montreal, Quebec, Canada. No charge.

University of New Hampshire

A New England Land–Grant Network John D. Bardwell.

Available from the New England Center for Continuing Education, Durham, New Hampshire 03824. No charge.

New College

The Student Housing at New College.

Available from New College, Sarasota, Florida 33578 or EFL. No charge.

Peralta Junior College District

Educational Specifications for the Health Occupations Education Center.

Available from Peralta Junior College District, Oakland, California 94609. No charge.

Philadelphia, Pennsylvania, Board of Public Education

The Joseph Priestley Science Center Donald W. Cox.

Available from Informational Services Office, School District of Philadelphia, 21st Street and Benjamin Franklin Parkway, Philadelphia, Pennsylvania 19103. No charge.

The Loft Building as a School House: A Study for the School District of Philadelphia Murphy, Levy, Warman.

Available from EFL. No charge.

Rennselaer Polytechnic Institute

Project Reward . . . and Campus Building.

Available from the Center for Architectural Research, Rennselaer Polytechnic Institute, Troy, New York 12181. No charge.

The Research Council of the Great Cities Program for School Improvement

Space Is Where You Find It.
Challenge: Studies for Western High Schools in the District of Columbia.
New Life for Old Schools.
Awards/Report of a Design Competition for the Modernization of Hyde Park High School/Chicago, Illinois.
Pittsburgh Design Studies
The Wightman Elementary School
The Liberty Elementary School.

The Intermediate School/The Report of an Architectural Design Competition for the Conversion of New York City's Joseph H. Wade Junior High School to House an Innovative Education Concept.

Available in single copies from the Research Council of the Great Cities Program for School Improvement, 1819 H Street N.W., Washington, D. C. 20006. No charge.

Rice University

New Schools for New Towns.

Available from School of Architecture, Rice University, Houston, Texas 77001 or EFL. No charge.

Stanford University

Building Systems Information Clearinghouse Newsletter.

Available from Systems Division, School Planning Laboratory, School of Education, 770 Pampas Lane, Stanford, California 94305. No charge.

Planning for Elementary Schools.
Spectrum.
Study Carrels, Design for Independent Study Space.
SPL Reports a newsletter on activities of the School Planning Laboratory.

Available from School Planning Laboratory, School of Education, Stanford University, Stanford, California 94305. No charge.

NOTE: Stanford's own reports, monographs, research and surveys, guides, and handbooks are also available from the School Planning Laboratory.

Stephens College

The James Madison Wood Quadrangle.

Available from Stephens College, Columbia, Missouri 65203. No charge.

Syracuse, New York, Board of Education

The Campus Plan.

Available from David F. Sine, Staff Director of Research, City School District, 409 West Genesee Street, Syracuse, New York 13202. No charge.

University of Tennessee

Profiles of Significant Schools

A series of reports which provide information on some of the latest developments in school planning and design.

Alcoa High School, Alcoa, Tennessee.
Clarksville-Montgomery County High School, Clarksville, Tennessee.
Greeneville Junior High School, Greeneville, Tennessee.
Riverview Gardens Elementary Schools, St. Louis, Missouri.
Rockwood Elementary School, Rockwood, Tennessee.

Available from School Planning Laboratory, University of Tennessee, Knoxville, Tennessee 37916. No charge.

University of Texas

An Auditorium Teaching Facility.

Available from the Office of the Chancellor, the University of Texas, Austin, Texas 78712. No charge.

The Metropolitan Toronto School Board

SEF E1 and SEF E2 Educational Specifications and User Requirements for Elementary (K-6) Schools.

Available from the Metropolitan Toronto School Board, 49 Jackes Avenue, Toronto 7, Canada or EFL. No charge.

University City Science Center

A Center for Conferences and Continuing Education.

Available from University City Science Center, 3401 Market Street, Philadelphia, Pennsylvania 19104. No charge.

Wayne State University

The Commuting Student.

Availble from Dr. Richard Ward, The Commuter Centers Project, Wayne State University, Detroit, Michigan 48202 or EFL. No charge.

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